What is Biological control?
Biological control may be defined simply as the utilization of natural enemies to **reduce** the damage caused by destructive organisms to tolerable levels. Biological control can involve the use of parasites, predators, pathogens or a combination to control a pest species. There are several types of biological control.

Conservation Biological Control- Conservation of natural enemies
Augmentation Biological Control- Release of natural enemies
Classical Biological Control- Importing natural enemies from the native area

The air potato beetle program is a type of classical biological control. These beetles were sourced from Nepal and China.

Is it safe?
We determine if it is safe to import species based on years (usually over a decade) of scientific research. We assess the amount of damage caused to the invasive organism. A biological control agent must cause a lot of damage to be cost effective and the beetles are very damaging to air potato vine. We also asses the agent's ability to disperse. If the agent does not disperse well on its own it will be expensive to utilize. The beetles fly on average 8.2 km/yr which makes them good agents. The final and most important character to assess is host specificity. **Host specificity** involves testing the agent on dozens of native related and unrelated plants to determine if they will eat anything they shouldn't. We tested closely related species (same Genus), distantly related species (same Family), and agricultural or economically important species (like regular potatoes). Overall 41 species were tested, and the beetle only feeds and reproduces on the invasive air potato. YES, IT IS SAFE!

Anticipated outcomes
The goals of our program are reduction of the invasive vine population and subsequent reduction of negative impacts on the native flora and fauna. Another goal is the establishment of the beetle in all counties and discontinuation of beetle production and release of the agent. Once the beetles are established, as they are in many counties, they are meant to carry on without additional support. We will continue to release beetles to ensure population diversity, to boost populations in areas where they did not overwinter, to increase populations where they are not established, and into nature preserves where they are vital conserve the environment.

The goal is not eradication. In order to eradicate vines you must incorporate additional methods of control such as physically removing bulbils and tubers.

Where are the beetles?
Please keep in mind vines generally begin to regrow in the spring approximately 2 months before beetles begin to emerge and reproduce. Only a small portion of adult beetles survive through the winter with no food source. These beetles require weeks to begin feeding and multiplying. As they increase in numbers throughout the summer they self-disperse to new vine locations. Therefore, do not expect to see beetles at any given vine infestation until summer.

Air Potato Beetle Quick Facts

- Adults and larvae of the air potato beetle feed on the foliage of only *Dioscorea bulbifera.*
- Adults are black and red, about 3/8 of an inch long. Larvae start out yellowish or reddish and eventually turn grayish to reddish.
- The life cycle from egg to adult is around 30 days; adults can live for 5 months or longer.
- Females lay an average of 1,800 eggs
- Eggs are laid in groups on the underside of leaves.
- Mature larvae move to the soil, where they pupate